



Fiji's dairy industry: a cost and profitability analysis

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With rising input costs, dairy farmers in Fiji have been calling for more government support. Using primary survey data, we examine dairy farming's cost structure and profitability. The results indicate high returns in the industry—suggesting the removal of existing subsidies—but point to the need for other forms of government assistance.

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It has often been argued that, given the poor economic performance of Pacific island countries, agriculture is one of the sectors with the potential to support the rapid growth and transformation of these economies (for example, AusAID 2008). There are a number of industries within the agricultural sectors of Pacific island countries that could be sources of growth. One such industry for Fiji is dairying.

Pacific island countries have had various degrees of success with dairy farming, but overall have not been very successful. Milk production levels in most countries have been stagnant, or even declining (Table 1), and therefore imports of dairy products have increased, with significant impacts on trade balances.

In Fiji, as in other Pacific island countries, dairying has not been an organised farming activity. It has, however, played

an important role in enhancing rural household incomes. Positive returns have provided signals to other farmers to enter the industry. The number of smallholder farmers has therefore increased over the years. The national consumption of milk is approximately 80 million litres per annum; only 20 million litres are produced domestically, with approximately 10 million litres coming from the commercial sector and 10 million from the informal sector. Therefore, approximately 60 million litres of milk are imported annually to meet local demand. The Rewa Cooperative Dairy Company (RCDC), the only local processor, has the capacity to process 40 million litres of milk annually, leaving a shortfall of 30 million litres.

There have been public comments about the poor returns to dairy farmers and the danger of the industry's collapse due to



Table 1 **Milk production (excluding butter) and imports for selected Pacific island countries, 1994–2003** ('000 tonnes)

	Fiji		Samoa		Vanuatu		Solomon Islands	
	Production	Imports	Production	Imports	Production	Imports	Production	Imports
2003	57.50	32.91	1.50	1.99	3.00	1.23	1.37	0.76
2002	57.50	14.58	1.50	2.56	2.90	1.10	1.30	1.42
2001	57.00	20.70	1.50	3.21	2.90	0.95	1.30	0.96
2000	56.00	20.85	1.50	3.41	3.00	1.74	1.30	0.96
1999	55.00	30.23	1.45	2.87	3.00	1.91	1.30	1.79
1998	57.00	24.81	1.35	2.98	2.90	2.17	1.30	2.42
1997	57.80	26.34	1.30	3.29	2.90	1.53	1.30	2.01
1996	60.70	25.11	1.30	3.54	2.90	1.53	1.30	1.50
1995	66.00	27.09	1.30	3.13	2.90	1.53	1.30	3.52
1994	65.26	22.80	1.30	3.23	2.90	1.48	1.30	0.96

Source: Food and Agriculture Organization, 2007. *FAO Statistical Database*, Food and Agriculture Organization of the United Nations, Rome. Available from www.fao.org/corp/statistics/en.

rising costs and expiring land leases. Is this the case? In this paper, we undertake production economics analysis to examine the state of Fiji's dairy industry, taking account of its profitability and the problems that dairy producers face.

Production economics analysis can help provide an understanding of current resource use in the agricultural sector, and in so doing provide a basis for understanding what changes in resource allocation would lead to more productive use of resources and increased profits for farmers. Such quantitative analysis can be conducted in depth on the farm; it is at this level where major resource-allocation decisions are made. Farm-level data also permit disaggregation by region, farm size, sales or income, and other factors that might influence resource allocation; such disaggregated data can be used to fine tune policy to the needs and potential of different types of farms, crops, regions and communities (Rao 1989).

Current status of the dairy industry

Commercial dairying in Fiji began about 1910 and the dairy industry gained momentum in 1920. After World War I, returned servicemen were provided with land under the Tailevu Dairy Scheme. In 1924, these farmers established a butter factory at Waila, Nausori. This factory marked the establishment of the RCDC (RCDC 1998). As the operations of the RCDC grew, a larger factory was constructed in 1959 at Nabua. Until 1974, 24 shareholders, including dairy farmers and businessmen, owned the RCDC (RCDC 1998). In the same year, the government introduced the *Cooperative Dairy Companies Act*, whereby any cooperative dairy company could be owned by its suppliers. In 1978, with assistance from the New Zealand government, the Nabua factory was equipped with a sterilising plant and sterilised milk was produced in glass bottles (RCDC 1998). A major investment by the RCDC in 1988 resulted in the production of ultra-heat-treated milk in Tetra Pak containers. The RCDC is the sole processor



of locally produced milk, yoghurt, table cheeses, evaporated milk, flavoured milk, modern UHT products and cream.

Dairy producers in Fiji can be categorised broadly into five major sectors: large milk producers for the RCDC; smallholder producers for the RCDC; registered producers supplying urban centres; unregistered producers supplying urban centres; and subsistence and/or home consumption producers. According to the Ministry of Agriculture's *Animal Health and Production Annual Reports*, dairy production is categorised into two sectors—formal and informal—with 291 registered dairy farms, of which 65 supply urban markets and 226 supply the RCDC. Farmers supplying milk to the RCDC make up the formal sector, while other farmers are categorised as informal (Ministry of Agriculture 2001–03).

The large and smallholder producers who supply milk to the RCDC are located in the Central Division, which covers the provinces of Tailevu, Naitasiri, Rewa and Serua/Namosi. According to the RCDC's 2006 raw milk supplier list, of a total of 244 suppliers, eight did not supply any milk during the year, 17 did not supply any milk during December and four provided inconsistent supplies during December. Apart from the commercial dairy farming

in the Central Division, subsistence dairy farming is a common feature in the Western and Northern divisions, mainly in the sugarcane belts.

Smallholder dairy farmers are those who supply milk to the RCDC through four collection centres. RCDC contractors collect milk from the farms and transport it to the collection centres. At the collection centre, the milk is cooled before transport to the processing plant in Nabua. Bulk farmers are those who produce and cool milk in large quantities on their own farm for collection by the milk tankers. The informal sector is made up of non-commercial dairy farms scattered throughout the country producing only for household consumption. Surplus milk is either fed to livestock or converted to ghee through manual processing. The ghee is used for household consumption or sold in local markets. Informal farmers own only one or a few cows and tether them beside roads and on sugarcane farms. The informal sector accounts for more than 50 per cent of total national milk production, as shown in Table 2.

Despite the investment of significant amounts of money by the Fijian government and aid agencies to boost the dairy industry, milk production in the formal sector has been stagnant at about 10 million litres annually

Table 2 Fiji: local milk production and imports, 2000–05

Year	RCDC milk intake (million litres)	Non-RCDC source (million litres)	Farm gate@\$.42 value (F\$ million)
2000	9.52	17.19	11.20
2001	10.51	25.81	15.25
2002	11.04	17.41	11.95
2003	11.13	12.53	9.94
2004	11.77	13.54	10.63
2005	11.84	13.69	10.72

Sources: Milk production data retrieved from Ministry of Agriculture, various years. *Annual Report*, Government of Fiji, Suva; and import data retrieved from Fiji Bureau of Statistics, various years. Imports data, Government of Fiji, Suva.



Table 3 Fiji: national budget allocations to dairy development, 1996–2006 (F\$)

	Budget (F\$)
1996	-
1997	-
1998	448,500
1999	406,850
2000	304,000
2001	170,000
2002	200,000
2003	300,000
2004	300,000
2005	400,000
2006	300,000

Source: Fiji, 1995–2007. *Fiji Budget Estimates*, Government of Fiji, Suva.

(Lincoln International Limited 2004), leading to significant growth in imports. The dairy sector has been provided financial assistance by the national government through the annual capital project budget (Table 3). In addition, the industry has enjoyed four decades of protection and government support via quantitative import restrictions, tariffs and subsidies. This assistance was provided to promote local dairy production and provide a platform for the RCDC to improve efficiency (Prasad 1998).

The survey

The data for dairy-farm operations were collected through interviews using structured questionnaires. Since the commercial dairy farms are concentrated in the Central Division of Fiji, information was obtained from registered farmers supplying raw milk to the RCDC. The survey was conducted over three months, from January to March 2007. The primary data collection was concentrated in Tailevu and Naitasiri Provinces, where the majority of dairy farms are located. The Rewa and

Serua/Namosi regions were left out because they represented only a small proportion (9 per cent) of commercial dairy farms and because of resource constraints.

According to the RCDC's raw milk supplier list, 215 farmers were active suppliers in December 2006. Of these, 108 were targeted for interview; however, only 92 questionnaires were completed and these were used in the analysis. The representativeness of the sample is shown in Table 4.

A summary profile of the dairy farmers surveyed is shown in Table 5. The majority of the farmers were married and males dominated dairy-farm ownership (85 per cent). The dairy farmers were relatively old but had a substantial amount of dairy farming experience (on average, 20 years). While about 48 per cent have only primary school education, 10 per cent have tertiary qualifications. The average period of formal education of 8.9 years indicates that many farmers begin dairy farming after completing their primary education. The data also reveal that 79 per cent of farmers are living on the farm, while 13 per cent are living in the village and travelling between farm and village on a daily basis in order to milk their

Table 4 **Sample versus population**

Province	Percentage in population	Percentage in sample
Naitasiri	51.2	42.4
Tailevu	39.8	57.6
Rewa	3.2	-
Serua/Namosi	5.8	-
Total	244.0	92.0
Sample as a proportion of the population		37.7

Source: Data derived from the primary survey.

cows. On average, two family members work on the farm.

Of the 92 dairy farms surveyed, 58 per cent were on native-lease land, 8 per cent were on crown or state-lease land and 20 per cent were on freehold land. Thirteen per cent of farmers were farming communally, indicating shared farming among siblings.

Analysis of results

Milk production trends

Appendix Tables A1 and A2 show milk intake at the three milk-collection centres from 1997 to 2005. The highest annual milk production of 12.4 million litres was recorded in 1998. Milk production fell in 2000 because of the *coup* and again in 2005 because of adverse weather conditions. Overall, Naluwai Chilling Centre recorded an increasing milk intake, indicating the capacity of farmers in this locality to produce more milk. Milk supplies to the RCDC by smallholder farmers are increasing while the total supply has been steady over the years. Secondary milk production data obtained from the RCDC also revealed that milk production was lowest during the months of April to June and peaked between October and January. In order to increase milk production, therefore, yields during the low-producing months need to be addressed.

Cost analysis: smallholder versus bulk farmers

Data presented in Table 6 show the average variable costs of the 86 smallholder farmers surveyed. The maximum total variable cost was F\$21,256, the minimum was F\$1,961 and the average was F\$7,514. The variable costs were categorised into seven types of expenses. On average, labour costs accounted for 66 per cent of the variable costs. These labour costs included wages for hired labourers for milking, feeding calves and other casual jobs. Pasture development accounted for 4 per cent of the total variable costs, including the purchase of pasture seeds, wages for labourers for pasture planting, the purchase of fertiliser and land preparation costs. On average, 6 per cent of total variable costs was associated with fencing costs, 4 per cent was for the payment of utility bills including water and electricity; another 6 per cent was for the purchase of calf-milk substitute, 5 per cent was for miscellaneous costs and 9 per cent was for the purchase of supplementary feed.

With regard to the variable costs of the six bulk farmers surveyed, the maximum total variable cost was F\$81,012, the minimum was F\$21,242 and the average was F\$54,934. On average, labour accounted for 50 per cent of the variable costs. These labour costs included family labour, wages for hired labourers for milking, feeding calves



and casual odd jobs on the farm. Pasture development accounted for 4 per cent of the total variable costs, which included the purchase of pasture seeds, wages for labourers for pasture planting, the purchase of fertiliser and land preparation costs. On average, 8 per cent of the total variable costs

was associated with fencing, 7 per cent was for payment of bills including water and electricity, another 3 per cent was for the purchase of calf-milk substitute, 13 per cent was for miscellaneous costs and 15 per cent was for the purchase of supplementary feed.

Table 5 Summary profile of dairy farmers (n = 92)

Variable	Sample observation
Mean age (years)	51 (134)
Gender (%)	
Males	85
Females	7
Marital status (%)	
Married	87
Single	7
Widowed	6
Education Level (%)	
Primary	52
Secondary	37
Tertiary	11
Ethnicity (%)	
Fijian	49
Indo-Fijian	49
Other	2
Years of dairy farming	20.4 (198.1)
Years of formal education	8.9 (12.1)
Size of household	5 (5)
Place of residence (%)	
On Farm	79.3
In village	13.0
Other	7.7
Family members working on farm	1.7 (0.8)
Land tenure (%)	
<i>Mataqali</i>	13.0
Native lease	57.6
Crown lease	7.6
Freehold	19.6
More than one lease type	2.2

Note: Figures in parentheses are variances.

Source: Data from primary survey.


Table 6 Cost composition for smallholder and bulk farmers (per cent)

Cost items	Smallholder farmers (per cent)	Bulk farmers (per cent)
Labour	66	50
Pasture development	4	4
Fencing material	6	8
Bills	4	7
Calf-milk substitute	6	3
Feed	9	15
Miscellaneous	5	13
Mean cost (F\$)	7,514	54,934
Mean milk output (litres)	34,807	260,750
Cost per litre of milk (F\$)	0.22	0.21

Source: Data from primary survey.

Gross margin analysis

Table 7 shows that an annual average gross margin of 67 per cent was obtained from milk sales by the 86 smallholder farmers surveyed. That is, on average, smallholder farmers use 33 per cent of their milk sales revenue to meet variable costs. The minimum gross margin was -F\$2,146 and the maximum was F\$67,492. The gross margin was calculated for the total milk output, including the milk supplied to the RCDC, milk used for home consumption and milk fed to calves. Table 7 also shows that the average gross margin for milk sales realised by the six bulk

suppliers surveyed was 53 per cent. On dairy farms, sales of steers and old milking cows for meat contributed additional income. With the additional income included, the annual average gross margins for the smallholder farmers increased from 33 to 42 per cent (Table 7). For the bulk suppliers, the additional revenue did not increase the gross margin, which remained at 47 per cent.

The analysis was extended to examine the differences in performance between indigenous Fijian and Indo-Fijian dairy farmers. From the data presented in Table 8, we note that while the land area farmed by ethnic Fijian farmers is larger, their herd size

Table 7 Annual average gross margins of bulk and small farmers with milk sales only and with milk and cattle sales (per cent)

	Milk sales		Milk and cattle sales	
	Total variable cost	Gross margin	Total variable cost	Gross margin
Small farmers	67	33	58	42
Bulk suppliers	53	47	53	47

Note: Gross margins are calculated on a base price of \$0.35/litre.

Source: Data from primary survey.



and number of milking cows are much smaller. Further, the milk output per milking cow realised by Fijian farmers is much lower than that of the Indo-Fijian farmers. This difference is quite worrying given government efforts to raise the living standards of ethnic Fijian farmers. There appear to be two key reasons for the low milk yields on ethnic Fijian farms: first, most of these farms are communally owned. The villagers take turns milking and receive separate payments from the RCDC. This results in poor coordination of farm activities other than milking. Second, ethnic Fijian farmers tend to use more inputs than Indo-Fijian farmers to rear young calves for slaughter. Given the traditional obligations of ethnic Fijians, calf rearing is an important farm objective.

Problems, needs and priorities, and policy issues

Given the large disparity in the dairy farmers' incomes, this section examines some of the problems faced by dairy farmers and suggests some ways in which these problems could be resolved. A list of the problems, as prioritised by the dairy farmers, is given in Table 9. A total of 18 major problems were recorded: 25 per cent of farmers stated that their most important problem was the expiry of land leases; 18 per cent identified inconsistent feed supplies from the RCDC; 11 per cent gave top priority to water-supply problems on their farm; and 10 per cent identified the high price of herbicide as the top priority. All the farmers attached different levels of importance to 12 of the 18 problems. None of the farmers stated that the high cost of feed or the lack of government assistance were their main problems.

Table 8 A comparison of ethnic Fijian and Indo-Fijian farmers

	Minimum	Maximum	Average
Fijian farmers			
Land area (ha)	2	230	58
Dairy herd			
Total stock (no.)	5	150	35
Current milking cows (no.)	3	50	14
Production			
Milk (litres)	2,359	77,212	18,447
Milk (litres/head)	786.3	1,544.2	1,317.6
Indo-Fijian farmers			
Land area (ha)	4	162	45
Dairy herd			
Total stock (no.)	10	250	60
Current milking cows (no.)	4	80	24
Production			
Milk (litres)	5,539	239,856	45,551
Milk (litres/head)	1,384.8	2,998.2	1,898.0

Source: Data from primary survey.

Table 9 **Problems identified**

Farmers' problems in order of importance (per cent)

Issues	First	Second	Third	Fourth	Fifth
1 Inconsistent feed supplies from the RCDC	18	16	10	5	7
2 Lease expiry	25	3	0	2	1
3 Weather	1	6	10	19	20
4 Political issues/theft/low stock	4	3	5	2	3
5 Labour availability	1	1	1	0	0
6 Water supply	11	13	7	2	0
7 Inaccessibility of finance	4	6	3	3	5
8 High cost of feed	0	6	8	9	7
9 Swampy land	6	6	5	5	6
10 Expensive herbicide	10	7	14	7	10
11 Social obligations	2	2	6	7	3
12 Poor roads	5	8	6	7	4
13 Low milk price	2	7	2	6	1
14 Lack of government assistance	0	5	5	13	13
15 Lack of breeding animals	2	10	8	11	13
16 High maintenance costs	4	0	5	2	5
17 Communal farming	3	2	3	1	1
18 Insufficient land	3	1	4	1	3

Source: Data tabulated from the survey.

Table 10 **Farming objectives**

Objectives in order of importance (per cent)

Issues	First	Second	Third	Fourth	Fifth
1 Increase milk production and stock	21	22	10	14	6
2 Improve stock	6	9	13	5	10
3 Establish fodder bank	5	10	6	7	8
4 Upgrade shed/paddock	8	12	11	13	6
5 Subdivision of paddocks	5	16	21	17	13
6 Water reticulation	5	6	5	7	6
7 Negotiate lease	25	0	0	0	0
8 Purchase milking machine	5	3	2	4	7
9 Purchase farm vehicle	0	0	2	0	0
10 Upgrade farm road	4	6	7	4	5
11 Drainage improvements	2	2	4	3	6
12 Pasture planting	9	7	13	11	17
13 Purchase of new farm	1	2	1	0	0
14 Land clearing and weed control	5	7	7	17	18

Source: Data tabulated from survey.



A list of the 14 objectives identified by the farmers is shown in Table 10. Twenty-five per cent of farmers stated that their main objective was to negotiate the extension of their land leases; 21 per cent indicated that their first priority was to increase milk production and cattle numbers; 5 per cent ranked as their first priorities the goals of establishing a fodder bank, the subdivision of paddocks, investment in water reticulation, the purchase of a milking machine, and land clearing and weed control. All farmers attached different rankings to 11 of the 14 activities.

Table 11 shows the ranking of seven policy issues identified by the farmers. Twenty-nine per cent of farmers named government subsidies as their top priority and requested that the government provide subsidies for fencing materials, including barbed wire and treated pine posts. Twenty-five per cent of dairy farmers had subsidy issues as their second priority, while 23 per cent gave subsidies as their third priority. Twenty-two per cent stated that annual dairy inspections were very encouraging, as farmers had to make sure that their milking sheds were in good condition and complied with the hygiene requirements of the *Dairy Act*. Eighteen per cent of farmers indicated that tariffs and the price for milk were the top

priorities for the government to address. In relation to tariffs on milk and milk products, farmers stated that if the dairy sector were subject to further deregulation, milk imports would be a great threat to the RCDC.

Currently, farmers receive a two-thirds subsidy on selected farm inputs, as approved by agricultural extension officers. The gross margin analysis does not, however, provide a case for such assistance. There is a case for the government to provide high-quality extension and research services, given the importance of this industry in terms of nutritional needs and household livelihoods. Countries around the world have become increasingly wary of the costs of subsidisation of agricultural activities. A 2007 US *Farm Blue Print* revealed that the dairy industry in the United States was at a crossroads, given the range of government support to the industry—support which led to farmers producing milk for the government rather than for the market. The report states that

[t]he current subsidy programs—the price support program and the MILC program—are each fundamentally flawed and out of step with the forces that will define the industry's future (IDFA 2007:16).

Table 11 Policy issues relating to dairy farmers

Issues in order of importance (per cent)

Issues	First	Second	Third	Fourth	Fifth
1 Dairy inspections	22	14	13	9	17
2 Tuberculosis testing	13	11	12	12	23
3 Subsidies	29	25	23	18	3
4 Agricultural assistance	3	21	26	17	18
5 Affirmative assistance	8	6	9	8	12
6 Livestock extension services	8	11	7	31	16
7 Tariff/milk price	18	13	21	6	13

Source: Data tabulated from survey.



New Zealand had a heavily protected dairy industry until 1984. Assistance to its industry included subsidies on fertilisers, tax breaks for increasing herd size, price support, low-interest loans, disaster relief, weed-eradication subsidies and special training programs for dairy farmers. It was eventually realised that the assistance had become an impossible burden on the State. In 1984, New Zealand's economy underwent a major reform in which these support programs were eliminated. Output and net incomes in the dairy industry are higher now than before the subsidies ended—and the cost of milk production is among the lowest in the world (Sayre 2003). Australia had similar government support programs for its dairy industry. The pressure on government resources resulted in the government cutting 'the industry loose, to deregulate and to allow the market to take its course' (Sechler 2007:1). The industry was subject to gradual deregulation between 1986 and 2000.

The removal of subsidies in Fiji will have economic and social implications for smallholder farms. The analysis reveals that of the 92 farmers surveyed, 43 have gross income of less than F\$8,000 (Appendix Table A3). Further, 28 farmers had annual incomes between F\$8,001 and F\$16,000. These farmers will need closer monitoring and extension advice to improve milk production, lower costs and raise farm incomes.

Summary and policy implications

The economic analysis revealed that for smallholder and bulk dairy farmers, labour costs accounted for more than 50 per cent of the total variable costs. Feed costs are the second most important cost item. The estimates for cost per litre of milk show that smallholder farmers produce a litre of milk at

a cost of F\$0.22, while bulk farmers produce at F\$0.21 per litre. For the smallholder farmers, the annual average gross margin was 33 per cent and for the bulk farmers, the annual average gross margin was 47 per cent. It should be noted that returns have been calculated using the base price of F\$0.35/litre. Milk is, however, graded and some farmers receive a much higher unit price. Despite such high returns, farmers have continuously asked for subsidies from the government. Currently, farmers receive a two-thirds subsidy on selected farm inputs, as approved by agricultural extension officers. Given such high returns, farmers' calls for subsidies and controls of imports do not appear to be justified.

The survey identified problems faced by farmers. Key problems include the expiration of land leases, inconsistent feed supplies from the RCDC and farm water-supply problems. It is these problems that need attention from the State rather than it subsidising farm inputs. The government's inability to resolve the land-tenure impasse affects not only current farmers, it is an impediment to expansion of the industry.

The analysis of farm data revealed lower milk yields achieved by ethnic Fijian farmers compared with Indo-Fijian farmers. This is a worrying result given government efforts to raise the standard of living of ethnic Fijians via affirmative action policies. Again, agricultural extension advice backed up by research will help reduce this difference.

Further insights into the industry can be gained if the study is extended on two fronts. First, the primary data can be used to examine the technical efficiency of the industry. From this analysis, the output increase that can be gained by technical improvements on less-efficient farms can be projected. Second, the Ministry of Agriculture could undertake a survey of the informal dairy-farming sector to see in what ways this segment of the industry



could be strengthened. The informal sector provided more than half the total national output, therefore playing an important role by supplementing rural incomes and household nutrition in non-dairy farming areas. Once the impediments are dealt with, and efficiency is raised, the potential for the industry to expand to other regions of Fiji could be explored.

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Appendix

Table A1 Milk production at the RCDC, 1997–2005

Year	Bulk	Naluwai	Waidalice	Waidewara	Total
1997	8,057,619	1,585,914	1,598,530	633,387	11,875,450
1998	8,349,245	1,707,031	1,743,353	657,083	12,456,712
1999	7,291,132	1,557,010	1,734,433	572,896	11,155,471
2000	6,476,280	1,432,918	1,535,469	557,130	10,001,797
2001	6,681,533	1,622,605	1,447,868	645,295	10,397,301
2002	6,900,100	1,723,704	1,520,490	747,970	10,892,264
2003	6,937,824	1,908,680	1,545,286	741,700	11,133,490
2004	6,819,171	2,202,184	1,911,359	828,550	11,761,264
2005	4,186,245	1,756,324	1,206,577	531,133	7,680,279

Table A2 Milk intake at chilling centres (litres)

Year	Naluwai	Waidalice	Waidewara
1997	1,585,914	1,598,530	633,387
1998	1,707,031	1,743,353	657,083
1999	1,557,010	1,734,433	572,896
2000	1,432,918	1,535,469	557,130
2001	1,622,605	1,447,868	645,295
2002	1,723,704	1,520,490	747,970
2003	1,908,680	1,545,286	741,700
2004	2,202,184	1,911,359	828,550
2005	1,756,324	1,206,577	531,133

Table A3 Number of farmers by income categories

Income range (\$)	No. of farmers
0–8,000	43
8,001–16,000	28
16,001–24,000	7
24,001–32,000	4
32,001–60,000	5
60,001–100,000	2